III.B.2 H/U Versus U g/ℓ Relationships

The calculations for the critical parameters for homogeneous uranium systems were taken from the following H/U relationships:

For $U-H_2O$ and UO_2-H_2O solutions:

Both the $U-H_2O$ and the low enrichment UO_2-H_2O relationships were calculated from the general equation on page II.C.3-1. The $U-H_2O$ relationship is shown graphically on page III.B.2-4. The UO_2-H_2O curves are shown on page III.B.2-6.

For UO_3-H_2O solutions:

This relationship was taken from the H/U relationship shown on pages III.B.2-2 or III.B.2-3. It takes into account experimental data in the H/U range from 5 to 8.

For uranium nitrate (low enrichment) solutions:

The curve shown on page III.B.2-4 was used. It takes into account denitration at high densities and results in lower H/U values (above about 300 g/ℓ) for a given density than would be calculated by the general equation in section II.D.3. The resulting curves of $H/^{235}U$ are shown on page III.B.2-5.

For U(93.5) and U(100) nitrate solutions:

The general equation on page II.C.3-1 was used and therefore no denitration effects were calculated.